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THE UNIVERSITY OF ALBERTA

SALIENCE AS A MEDIATOR OF PERCEIVED SOURCE OF AROUSAL

BY

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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To Marilyn

Abstract

Researchers interested in the situational determinants of aggressive behavior have explored the relationship between aggression-eliciting stimuli and subsequent aggressive behavior. Initially aggression-eliciting stimuli were predicted to increase aggressive responses in the absence of intervening cognitive mediation (Dollard, Doob, Miller, Mowrer, and Sears, 1939). More recently, aggression theorists have proposed several mediators between aggression-eliciting stimuli and aggression in an attempt to improve the predictability of aggressive behavior. First, anger was suggested as a mediator; then researchers concluded that causal attributions mediated the relationship between aggression-eliciting stimuli and anger; and most recently Rule, Ferguson, and Nesdale (1979) proposed that the salience of arousing stimuli may be an important determinant of causal attributions of arousal. The more salient a stimulus was the more likely a person would be to attend to that stimulus and subsequently attribute experienced arousal to that stimulus. Thus the salience of aggression-eliciting stimuli influence causal attributions which in turn influence anger and subsequently aggression.

To explore the relationship of stimulus salience to causal attribution, a series of three experiments was conducted. In the first experiment, 24 male subjects listened to tape recordings of an erotic passage, a violent passage, or both passages presented dichotically. Physiological measures and self-ratings indicated that the passages were arousing. In the second experiment, each arousing passage was played to 10 male subjects. While listening to the passages the subjects watched 90 words presented sequentially on a television monitor. After the presentation of the passage and words the subject was given a test of his memory for the words

(recall and recognition). Some words were remembered equally well regardless of the passage heard. However, other words were better remembered if they were seen while listening to one passage rather than the other. These words were employed in the final experiment in an attempt to manipulate the salience of the two passages.

In the third experiment, 40 subjects listened to both passages dichotically. Subjects who saw words remembered best after hearing the violent (erotic) passage were expected to perceive the violent (erotic) passage as more salient, listen most to the violent (erotic) passage, and attribute their arousal to the violent (erotic) passage. The results of experiment 3 were exactly as predicted for subjects who saw words intended to make the violent passage salient. However, the words intended to make the erotic passage salient produced no significant effects.

The equivocal results are discussed and attributed to a failure to manipulate the salience of the erotic passage. The implications of the results and of the Rule et. al. hypothesis for subsequent research in the aggression area are discussed. Further research of the properties that influence stimulus salience is recommended.

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Introduction

Researchers interested in the situational determinants of aggressive behavior have explored the relationship between aggression-eliciting stimuli and subsequent aggressive behavior. Initially, aggression-eliciting stimuli were predicted to increase aggressive responses in the absence of intervening cognitive mediation (Dollard, Doob, Miller, Mowrer, and Sears, 1939). This approach failed to predict adequately the aggressive behavior of participants in many experimental situations (e.g. Pastore, 1952). Subsequently aggression theorists proposed several mediators between aggression-eliciting stimuli and aggression in an attempt to improve the predictability of aggressive behavior. First, anger was suggested as a mediator. The more angry a person became, the more he/she was likely to be aggressive (e.g. Berkowitz, 1962). Next, researchers proposed that multiple sources of arousal could influence aggressive behavior. In particular these researchers felt that causal attributions mediated the relationship between aggression-eliciting stimuli and arousal attributed to anger. A person who was aroused would only become more aggressive if they were angry and became angry only if they attributed their state of arousal to an aggression-eliciting stimulus. A person who attributed arousal to an aggression-eliciting stimulus would be angry whether or not the aggression-eliciting stimulus had actually produced their arousal (Tannenbaum & Zillmann, 1975).

Rule, Ferguson, and Nesdale (1979) proposed that the concept of salience could be used to explain to which source a person would attribute experienced arousal. Salience refers to the tendency for a stimulus to draw attention. The potential source of arousal that draws the most attention is perceived as the source of arousal. Rule et. al. hypothesized

that the attribution of arousal to a particular source influenced the emotional label associated with the arousal state and subsequent behavioral tendencies. Consider a situation involving two potential sources of arousal. At a party a bachelor named Bob sees an attractive woman approaching him but at the same time overhears a nearby conversation in which he has just been insulted. Bob experiences arousal. What will he do? Rule et. al. argued that Bob's subsequent behavior would depend on the label he attached to his state of arousal. If he labels himself sexually aroused he will attend to the woman and may approach her or ask if anyone knows who she is and will introduce him. If he labels himself as angry, he will attend to the person who insulted him and may argue with, disparage or physically attack the insulter. The label associated with the arousal state is determined by the source to which Bob attributes his arousal. Thus Bob should label himself as erotically aroused if the attractive woman was perceived as the source of arousal but angry if the insult was perceived as the source of arousal. According to the cognitive labelling hypothesis (Rule et. al.), the relative salience of the two potential sources of arousal determines to which source arousal will be attributed. If the woman draws more of Bob's attention than the insult, Bob will feel that the woman caused his arousal, will be sexually aroused and will be inclined to act accordingly. If the insult draws more of Bob's attention than the woman, Bob will feel that the insult caused his arousal, will be angry and will be inclined to act aggressively. Which source actually caused Bob's arousal may not be important as a determinant of his subsequent behavior. The more salient source will determine subsequent behavior regardless of whether or not it actually caused the increased arousal.

The Rule et. al. model was the result of a long line of research that

attempted to explain aggressive behavior by specifying the mediating links between aggression-eliciting stimuli and subsequent aggressive behavior. The development of the hypothesized relationships is discussed below beginning with an unmediated stimulus-response approach and then discussing the addition of anger, attribution and labelling, and finally salience as mediators between aggression-eliciting stimuli and aggressive behavior. A brief review of each area and the relevance of each area to the Rule et. al. position is followed by a description of a series of studies that tested the influence of salience as a mediator between arousing stimuli and causal attributions of arousal. Finally, the implications of this research for the general area of aggression and specifically the Rule et. al. position are discussed.

An Unmediated, Stimulus-Response Approach

Dollard, Doob, Miller, Mowrer, and Sears (1939) proposed that all aggression was the result of frustration and that all frustration led to aggression. Frustration was defined as interference with or blocking of behavior sequences leading to any goal a person was motivated to achieve. This extremely broad theory generated twenty years of vigorous research and debate. The claim that all frustration necessarily led to aggression was questioned by many including the original authors of the theory (e.g. Miller, Sears, Mowrer, Doob, & Dollard, 1941). However, frustration was perceived to be an antecedent of aggression at least some of the time and many experimenters succeeded at eliciting aggressive responses from subjects by frustrating them. With regard to the current review, the most important aspect of the frustration-aggression hypothesis was the lack of mediating variables. Frustration increased instigation to aggress or aggressive drive which led to aggression. Aggressive drive was not an

interesting mediator of the frustration-aggression link in the Dollard et. al. model since frustration inevitably led to increased aggressive drive which inevitably led to aggression (at least given the absence of inhibitors).

The frustration-aggression hypothesis failed to explain some results obtained in studies employing frustration of subjects as a stimulus to aggression. For example, Pastore (1952) had subjects imagine that they were waiting for a bus and that a bus passed them without stopping to pick them up. Some subjects were told to imagine that the bus was the bus they were waiting for (arbitrary frustration) while others were told to imagine that the bus was labelled "garage" (nonarbitrary frustration). Subjects who had imagined being arbitrarily frustrated reported that they would be much more angry and likely to take aggressive action than did subjects who had been given justification for their frustration. The frustration-aggression hypothesis predicted that both groups of subjects would be equally frustrated since their goal to catch a bus was interfered with equally. Of particular interest is Pastore's finding that arbitrarily frustrated subjects would be angrier than non-arbitrarily frustrated subjects since anger played no part in the frustration-aggression hypothesis. Pastore and others have found that equally frustrated but angrier subjects tend to be more aggressive.

Anger as a Mediator of Aggression

Pastore's (1952) study demonstrated two important points: (1) frustration could produce anger as well as aggression; and (2) with frustration held constant, greater anger was associated with greater aggression. Results such as Pastore's led to the hypothesis that anger mediated the relationship of aggression-eliciting stimuli such as frustration, insult

or attack, on aggressive responses. Berkowitz (1962) substituted anger for the Dollard et. al. term "instigation to aggression". As a result, increases in anger were expected to produce increases in aggression. If Berkowitz had merely substituted a new term for an old one no advance would be expected; however, as well as proposing that anger mediated the relationship between eliciting stimuli and subsequent aggression, Berkowitz also argued that a wide variety of variables would influence anger. Anger was described as an innate reaction to frustration creating "an inborn readiness to attack" the source of frustration. Thus, frustration-aggression was mediated by anger. Arbitrary frustration produced more aggression because it resulted in greater anger than non-arbitrary frustration. Insult was a more potent antecedent of aggression than was simple interference with task completion (McClelland & Apicella, 1945, cited in Berkowitz, 1962) because insult produced more anger than did frustration. Any variable that increased anger would increase the probability and/or intensity of aggressive responses.

The impact of the anger-aggression approach was dramatic. Throughout the 60's and 70's experimenters measured subjects' self-rated anger as an indication that the stimuli employed in their experiments were appropriate aggression-eliciting stimuli. Paradigms were developed to assure that subjects could be angered. Confederates delivered varying numbers of shocks to subjects as evaluations of the subjects' performance on experimental tasks (Baron, 1971b, 1971c, 1972, 1974; Berkowitz & Geen, 1966, 1967; Geen & Berkowitz, 1966; Geen, Rakosky, & O'Neal, 1967; Turner & Berkowitz, 1972). More shocks consistently resulted in greater anger and increased subsequent aggression by the subjects. In other experiments (Baron, 1971a; Baron & Kepner, 1970; Berkowitz, 1965) confederates

insulted subjects before or during the performance of experimental tasks. Insulted subjects were consistently more angry and aggressive than non-insulted subjects.

In spite of the variety of variables investigated as influences on aggressive behavior in these studies, they all shared the common assumption that the relationship between aggression-eliciting stimuli and aggressive behavior was mediated by anger and that the specific variables investigated in each study would influence the aggressive behavior primarily of angered subjects. This assumption was supported by results indicating that many experimental manipulations had inconsistent or no effects on non-angered subjects but significant, predictable effects on angered subjects. For example, Berkowitz and Geen (1966) introduced a confederate to subjects as either Kirk or Bob Anderson in order to establish or not establish an association between the confederate and a film sequence starring Kirk Douglas that some subjects would see later in the procedure. The confederate was to "evaluate" the subject's solution to a problem by delivering from one to ten shocks to the subject. As a manipulation of anger, half of the subjects were shocked only once while the remaining half were shocked seven times. The subjects then watched either a violent boxing film (in which Kirk Douglas received a severe beating) or a non-violent track film. Finally, the subjects were given the opportunity to evaluate the confederate's solution to a problem by delivering from one to ten shocks. The interesting aspect of the results for the current discussion is that the name and film manipulations influenced the reported anger and aggressive responses of angered (seven shock) subjects but had no influence on the reported anger and aggressive responses of non-angered (one shock) subjects. Apparently the influence of

some aggression related stimuli are mediated by anger. In the absence of anger such stimuli have little influence on aggressive behavior.

Consider again the example of Bob who has been insulted but also was approached by a attractive woman. Insults were clearly aggressive-eliciting stimuli in the experiments cited above and manipulation checks in the experiments demonstrated that insults made subjects angry. However, the experiments cited employed single sources of arousal and provided no alternative explanation to anger as a label for their subjects' feelings of arousal. Bob has an alternative explanation of his arousal - he may consider himself sexually aroused. Bob's subsequent behavior can only be predicted if the label he will attach to his state of arousal is known. Will Bob attribute his arousal to the insult, become angry, and respond aggressively? To determine his behavior another level of mediation is required. In the next section attribution and labelling of arousal are considered as mediators between aggression-eliciting stimuli and anger.

Attributions and Labelling of Arousal as Anger

Psychologists have been interested in factors influencing the labels associated with states of arousal for nearly a century. James (1884) argued that bodily reactions to an "exciting fact" (arousing stimulus) preceeded cognitive labelling of the arousal state. Emotion for James was the complex pattern of bodily reaction resulting from exposure to an arousing stimulus. The cognitive labelling of such a pattern of reactions as anger, fear, joy, etc. was entirely predetermined by the nature of the reaction. Thus for James, cognitive labelling was epiphenomenal. A person coming upon a bear in the forest would become aroused, flee, and then "realize" that she/he was afraid by interpreting her/his pattern of bodily reactions.

James' position generated a great deal of research and debate. In spite of the criticisms of his approach, James' theory had an important impact on the area of emotion, and indirectly on the area of aggression. James' major contributions was not his theory per se but rather the idea that physiological arousal and cognitions about emotion were inexorably linked to the pattern of bodily reactions. Cannon (1927) interpreted James' theory to mean that there was a one - to - one correspondence between patterns of visceral reaction and experienced emotions. Although this enterpretation of James' theory is incorrect (Izard, 1971; Zillmann, 1979), Cannon sharply criticized James' theory on the grounds that visceral reactivity was too slow and diffuse to account for emotional behavior. Once emotional reactivity was restricted to the visera, external stimuli could not always be expected to produce unambiguous emotional experiences.

In his two-factor theory of emotion, Schachter (1964) stated that an emotional experience was the result of a change in physiological arousal accompanied by cognitive labeiling of the experienced arousal based on available cues from the environment. In most cases only one plausible source of arousal is present in the environment. Under such conditions emotional labelling is straight forward. For example, if Bob had only been insulted he would be angry. If he had only been approached by the attractive woman, he would feel sexually aroused. The more interesting situation involves two or more plausible sources of arousal. Schachter argued that people would label their arousal after searching the environment for the most likely cause of arousal. Unlike James, Schachter had proposed that the search for a cause of arousal need not arrive at the true cause. That is, according to Schachter, people might, under conditions of some ambiguity, mistakenly attribute arousal to a stimulus

present in the environment that had no real effect on them. The error of inappropriately attributing arousal to a source that had not produced the arousal has been called misattribution.

Schachter had meaningfully altered James' position by suggesting that an emotional reaction could result from a situation involving ambiguity. James had assumed that the stimulus eliciting an emotional reaction would be apparent to the person experiencing that reaction. Schachter argued that the source of arousal need not be apparent and that the cognitions were important if ambiguity existed with regard to the source of arousal. Misattribution of arousal as described by Schachter was based on the assumption that diffuse visceral responses to an arousing stimulus led to the use of cognitive processes to disambiguate the situation. In other words, Schachter felt that people would use environmental cues to decide what had aroused them is the source of arousal was ambiguous.

Schachter and Singer (1962) conducted an experiment to demonstrate that misattribution of arousal could occur. Subjects were told that the experimenters were interested in the influence on vision of a vitamin compound called suproxin. All consenting subjects were injected with either a saline placebo or a solution containing epinephrine bitartrate, a sympathomimetic drug that produces reactions similar to activation of the sympathetic nervous system. Some epinephrine injected subjects were correctly informed that the injection would cause symptoms such as hand tremors, heart palpitations, and a flushed feeling (epinephrine informed subjects). Other epinephrine injected subjects were told that the injection was mild and harmless and would produce no side effects (epinephrine ignorant subjects). The remaining epinephrine injected subjects were told that the side effects of the injection included numb feelings in their

feet, itching, and a slight headache (epinephrine misinformed subjects). Subjects receiving the placebo were always given the epinephrine ignorant instructions. The descriptions of the side effects were intended to either give the subjects an adequate explanation for their arousal (epinephrine informed subjects) or prevent the subjects from having an adequate explanation for their arousal (epinephrine ignorant and misinformed subjects). Schachter and Singer believed that the epinephrine informed subjects would correctly attribute their arousal to the injection and would be uninfluenced by other potential sources of arousal in the environment. However, the epinephrine ignorant and epinephrine misinformed subjects were expected to discount the injection as a source of arousal and, as a result, were expected to be influenced by possible alternative sources of arousal.

Next, Schachter and Singer provided the subjects with a possible alternative explanation for their arousal. The experimenter left and then returned with a confederate who was introduced as another subject. All subjects were told that the suproxin would take about 20 minutes to be completely absorbed into their systems and that they would wait with the other "subject" for that period of time. Shortly after the experimenter left, the confederate began acting in either a euphoric or an angry manner. Schachter and Singer expected that subjects who lacked an adequate explanation of their arousal would seek consensual validation of their feelings. Since the confederate was the only other person available in the situation, Schachter and Singer reasoned that the subjects would assume that the confederate's behavior, either euphoria or anger, indicated the appropriate label for their feelings of arousal. To the extent that subjects attributed their arousal to either anger or euphoria, or acted in an angry or euphoric manner, the study was successful in demonstrating the misattribution of arousal.

The behavior of all subjects was monitored through a one-way mirror and was rated indicating the degree to which the subject joined the confederate in either euphoric or angry behavior. Schachter and Singer interpreted their results as support for two-factor theory. Subjects in the epinephrine informed conditions reported less anger and euphoria and exhibited less angry and euphoric behavior than did subjects in the epinephrine ignorant and epinephrine misinformed conditions.

Although two-factor theory predicts that misattribution of arousal will occur under some conditions, it fails to specify a mechanism for selecting which of multiple sources of arousal will be perceived as the source of arousal. Also, tests of the two-factor theory (Schachter & Singer, 1962; Marshall & Zimbardo, 1979; Maslach, 1979) have employed a single source of arousal and attempted to mislead subjects to discount the true source of their arousal. Misattribution of arousal occurred when subjects attributed their experienced arousal to a source that was unlikely to have actually produced the increased arousal experienced by the subjects, such as the euphoric behavior of a confederate. A closer approximation of the situation of Bob at the party requires two or more truly arousing stimuli present in close temporal proximity.

Zillmann and others have extended Schachter's reasoning to situations involving multiple sources of arousal in temporal contiguity and relatively nonambiguous situations (Rule & Nesdale, 1976; Tannenbaum & Zillmann, 1975; Zillmann, Hoyt, & Day, 1974). For example Zillmann, Hoyt, & Day (1974) had a confederate anger each subject by delivering intense noxious noise to the subject to indicate his disagreement with attitudes and opinions expressed by the subject. The subject then watched one of four films: a neutral travelogue, an aggressive boxing sequence, a violent

sequence, or an erotic film. After watching one of these four films the subject watched a brief educational film. Finally, the subject was given an opportunity to retaliate by delivering noxious noise to the confederate whenever the confederate made an error on a learning task. Based on his extension of Schachter's reasoning, Zillmann predicted: (1) The subjects would be more aggressive the more aroused they were at the time of retaliation. (2) Since erotic arousal decays more slowly than aggressive or violent arousal, the erotic film condition should produce the most aggressive responses. (3) The neutral film condition was expected to produce the least aggression since no additional arousal would be produced in this condition. The results of the study supported the prediction that subjects would be more aggressive the greater their arousal at the time of retaliation and that most aggression would occur in the erotic film condition. Subjects exposed to the erotic film delivered significantly more intense noise than did the subjects in the other three film conditions. Physiological measures also indicated that subjects exposed to the erotic film were more aroused at the beginning of the retaliation phase than the subjects in the other three film conditions. The neutral, aggressive, and violent conditions did not differ in arousal at time of retaliation.

Zillmann, Hoyt, and Day interpreted their results as a demonstration of misattribution of arousal. According to Zillmann the subjects in the erotic film condition exhibited greater aggression during the retaliation phase of the experiment because (a) due to the slow rate of decay of erotic arousal, they experienced greater arousal at the time of retaliation than subjects in the other conditions' and (b) they misattributed their higher level of arousal to anger.

Although Zillman's studies extended Schachter's reasoning and demonstrated the misattribution phenomenon in situations involving multiple sources of arousal, this work also fails to provide a mechanism for predicting which source of arousal will be labelled the cause of arousal. Zillmann avoided this problem by providing his subjects with only one outlet for their arousal. Angered subjects were permitted to act aggressively. The subjects in the erotic film condition were apparently aroused by both the erotic film and the confederate's abusive behavior just as Bob at the party was aroused by both the attractive woman and the insult. Zillmann's research predicts that if Bob acts aggressively he will behave more aggressively because of the erotic arousal created by the approach of the attractive woman than he would have if the insult was the only source of arousal. Since Zillmann's subjects did not have an alternative mode of response, especially one appropriate to their other source of arousal in the erotic film condition, Zillmann's work does not predict whether Bob will react aggressively or amourously at the party.

As Schachter's and Zillmann's work have shown, the intensity of Bob's feelings of anger and the probability that he will respond aggressively to the insult depend upon both his total level of arousal and the source to which that arousal is attributed. Neither Schachter nor Zillmann provided a mechanism for deciding to which potential source Bob's arousal will be attributed. Predicting Bob's behavior requires one further mediator. In the next section stimulus salience is discussed as a mediator between aggression-(or arousal-) eliciting stimuli and attribution.

Salience as a Mediator of Causal Attributions

Research relating the salience of stimuli to causal attribution is both less extensive and less directly related to the aggression litera-

ture than is the anger or mulitple sources of arousal research. The term salience is found in the social, cognitive, and perception literature, particularly with reference to selective attention. A person simultaneously exposed to two or more stimuli generally pays more attention to one than to the other(s). The stimulus that draws the most attention, or is "selected", is referred to as the most salient stimulus. Selective attention research indicates that any factor that can be used to discriminate one stimulus from another, such as time of onset, intensity, gender of voice, etc., can be used to facilitate selective attention (see Moray, 1970 for a review of this literature). Selective attention research has dealt with relatively simple stimuli under highly controlled and artifical conditions and generally deals with salience as a property of stimuli. However, cognitive-social psychologists have argued that salience is a joint function of stimulus properties and observer characteristics. Salience affects causal attributions in a wide range of real-world and laboratory situations. Jones and Nisbett (1972) hypothesized that people engaged in activity find the immediate task demands highly salient and as a result attribute their behavior to situational factors, i. e. the task demands. People watching others engaged in an activity find the observed actors highly salient and attribute the actor's behaviors more to personal dispositions of the actors and less to situational demands than do the actors. Jones and Nisbett and others (e.g. Storms, 1973) have found empirical support for this position. In general, the actors behavior was attributed to the potential cause that was most salient to the person making the attribution.

Kelly (1967, 1973) argued that people make causal attributions to persons and situations based on the nature of information (consistency,

consensus, and distinctiveness) available at the time the attributions are made. In a recent study, Ferguson and Wells (1980) had subjects observe a video-taped scenario of a conversation between an employee and his supervisor. The employee was being told that he was not promoted. During the conversation Kelly's three types of information were provided. In addition, attribution-irrelevant information was also provided. After observing the three-minute interview, some subjects were asked to remember attribution-irrelevant information while others were asked to recall one of the three types of attribution-relevant information. Finally the subjects were asked to what they attributed the employee's failure to be promoted. Ferguson and Wells demonstrated that making a particular type of information salient (by requesting the subject recall that information) immediately prior to a request for causal attributions influenced both the time taken to respond and the strength of the obtained attribution. Their subjects were most likely to respond with attributions related to the information made salient by the previous question.

Taylor and Fiske (1975) suggested that the effect of salience on causal attribution might be mediated by differential memory for salient and nonsalient stimuli. They felt that salient stimuli might be more likely to be remembered (or more accessible[1]) than non-salient stimuli which might not be remembered at all. The accessability in memory of information about salient stimuli would lead people to attribute causality to such stimuli. If non-salient stimuli are not remembered and thus are

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1 An accessible stimulus is one that can be recalled from memory without outside or additional cues. If a subject can not remember that a particular stimulus was present, that stimulus is not accessible in memory and probably is not a plausible source of arousal for the subject.

not accessible in memory, they could not be the source of causal attributions. Taylor and Fiske (1975) and Pryor and Kriss (1977) obtained results suggesting differential memory for salient and non-salient stimuli.

In the first of two experiments, Taylor and Fiske had six subjects observe a conversation between two confederates. Two subjects sat to either side and slightly behind each confederate. These four subjects could observe the face of the confederate opposite them but could not observe the face of the confederate they sat behind. The remaining two subjects sat one to each side and half way between the confederates. These subjects had an equally good opportunity to observe either confederate. Each confederate asked for and gave information and changed topics during the conversation. The subjects were asked how much each confederate (1) set the tone of the conversation, (2) determined the kind of information exchanged, and (3) caused his partner to behave as he did.

The confederate who engulfed the subject's field of vision was expected to be more salient. For subjects sitting behind one confederate, the confederate opposite them was expected to be more salient. Both confederates were expected to be equally salient for the subjects sitting between the two confederates. The results indicated that salient confederates were rated as significantly more influential during the conversation. In their second experiment, Taylor and Fiske had subjects observe a videotaped conversation presented on a split-screen. The subjects were instructed to attend to the person on either the right or left side of the screen. Once again, the person observed by the subject was rated as more influential. In addition the subjects remembered more of what was said by the person they observed than of the person they did not observe.

Pryor and Kriss (1977) tested the hypothesis that salient and non-salient stimuli may be equally likely to be remembered but that salient stimuli would be remembered more quickly (more available[2]). People in the Pryor and Kriss experiments read brief sentences and were asked to make causal attributions about the event described in the sentence. For example, given the sentence "The cat scratched the dog." subjects would rate whether the cat or the dog was more responsible for the action described in the sentence. Pryor and Kriss felt that the subjects of sentences (cat) were more salient than objects of sentences (dog). Sentences such as "The dog was scratched by the cat." were also included. In this case the same action was described but now "dog" was the subject of the sentence and was predicted to be more salient and more likely to be perceived as the cause of the described behavior. Pryor and Kriss found that the salient subjects of sentences were more likely to be perceived as causes than were the less salient objects of sentences. After completing a series of trials, the experimental subjects engaged in a recognition task. A list of words containing both the subjects and the objects of the sentences was shown to the experimental subjects. The experimental subjects were required to indicate which words they had seen in sentences. Pryor and Kriss predicted that sentence-subjects would be remembered more quickly than sentence-objects indicating that the salient sentence-subjects were more available in memory. The experimental subjects took less time to identify correctly the sentence-subjects than they did to identify the sentence-objects. Thus memory

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[2] An available stimulus is an item that is remembered easily or quickly. Assuming that an item is accessible in memory, the effort and/or time required to retrieve the item is indicative of its availability in memory.

for salient stimuli was superior to memory for non-salient stimuli. If a stimulus was more likely to be remembered, more quickly remembered, or both, then that stimulus was more likely to be perceived as a "cause". In the example of Bob at the party, the more salient stimulus will be better remembered, influence Bob's causal attribution of his experienced arousal, and determine Bob's behavior. An aggressive response is likely only if the insult was more salient than the woman.

Rule, Ferguson, and Nesdale (1979) proposed that the relationship between aggression-eliciting stimuli and subsequent aggressive behavior is mediated by (1) the salience of the arousing stimuli, (2) causal attributions of arousal to the stimuli, and (3) resultant emotional labelling. Studies of anger and aggression indicated that labelling a state of emotional arousal as anger does increase the probability and intensity of aggressive responses. Studies of misattribution of arousal indicated that people who label their arousal as anger do feel more angry when aroused by both an angering and a non-angering stimulus. The mediating influence of causal attributions of arousal and labelling of a state of arousal as anger are thus both plausible and empirically supported. However, the relationship of salience to causal attributions has not been demonstrated with arousing stimuli. Speculations with regard to the impact of salient stimuli in arousing situations are based on the assumption that, when aroused, people narrow their attention and process only the most salient cues from their surroundings (Taylor & Fiske, 1978; Yarmey, 1979). If this is true, then salience should affect attributions and subsequent behavior more when the person is aroused than when not aroused. The experiments described below employ arousing stimuli to explore the relationship between salient stimuli and causal

attributions.

Appropriate Circumstances for Testing the Cognitive Labelling Hypothesis

One requirement for a test of the cognitive labelling hypothesis is a situation involving at least two possible sources of arousal. When two or more stimuli perceived to be possible sources of arousal are present in a situation, the most salient of these stimuli is predicted to draw more attention and lead more subjects to attribute more of their state of arousal to the most salient stimulus. In addition, the salience of the available sources of arousal should be manipulated. Experiments such as Schachter's or Zillmann's tests of misattribution of arousal can not provide a proper test of the cognitive labelling hypothesis unless the relative salience of each stimulus used is either known in advance or manipulated within the experiment. In the research described below an attempt was made to manipulate the salience of an erotic and a violent stimulus based on the relationship between salience and memory for stimuli.

Salient stimuli have been described as 'standing out' and being more prominent in memory than non-salient stimuli. This difference in memory for the stimuli may mediate subsequent attributions (Pryor & Kriss, 1977; Taylor & Fiske, 1975, 1978). The possible relationship of salience to memory presents an opportunity to manipulate the salience of stimuli presented to subjects. If cues are presented that are remembered well by subjects and associated with only one source of arousal, then the salience of the source of arousal associated with these cues should be enhanced. To test the salience-attention hypothesis, cues are required that enhance the salience of only one of the multiple sources of arousal so that unambiguous predictions can be made regarding the source to which

subjects should attribute their arousal.

Excitation Transfer versus Cognitive Labelling

Although the cognitive labelling (Rule et. al., 1979) and excitation transfer (Tannenbaum & Zillmann, 1975) approaches both deal with the possible misattribution of arousal in situations involving multiple sources of arousal, the cognitive labelling perspective has a broader purview. In addition to specifying to which source arousal will be attributed (the more salient source) cognitive labelling predicts that misattribution of arousal can occur when two stimuli occur in extremely close temporal contiguity. Excitation transfer is dependent upon a tightly restricted timing of stimuli. If the stimuli occur temporally too close to each other misattribution of arousal does not occur because the person perceives the independent effects of the multiple sources of arousal and attributes arousal to all relevant sources. If the stimuli occur temporally too far from each other, both approaches agree that misattribution of arousal does not occur because the arousal from the first source dissipates before the second source occurs. From the Rule et. al. cognitive labelling perspective misattribution could occur no matter how close (temorally) the multiple sources of arousal occur provided the sources differ in salience. Simultaneous presentation of arousing stimuli was used in the experiments described below in an attempt to demonstrate misattribution of arousal in a context beyond the purview of excitation transfer theory.

Overview

A sequence of three experiments was conducted to test the cognitive labelling hypothesis. In the first experiment, tape recordings of one erotic and one violent passage were played to subjects to determine if the passages were arousing and perceived to be arousing by the subjects.

In the second experiment erotic, neutral, and violent words were presented visually to subjects listening to either the erotic or violent passage. Memory for the words was used as a criterion of whether or not words would be suitable as salient cues for each passage. In the third experiment both passages were presented simultaneously (dichotically). During the presentation of the passages, subjects watched words intended to enhance the salience of the erotic, the violent, or neither passage. In this final experiment the subjects were expected to attribute their arousal to the passage for which salience had been enhanced.

Experiment 1

An erotic passage (Lawrence, 1962, pp230-233) and a violent passage (King, 1978, pp 632-635) were selected as stimuli. To test adequately the salience-labelling hypothesis, the two passages should have been physiologically arousing and perceived to be arousing. If one of the passages failed to meet this requirement, a failure to attribute arousal to the passage in the third experiment could have reflected (1) the inappropriateness of the passage as a plausible source of arousal, (2) the failure to manipulate the salience of the passage, or (3) the inaccuracy of the cognitive-labelling hypothesis. To avoid such ambiguity the arousing properties of the two passages were pilot tested. In addition, the passages had to be perceived to be either erotic or aggressive, but not both. If a passage was perceived to be both erotic and aggressive, then the subjects' attributions of arousal could not be unambiguously predicted since that passage could lead to either erotic or aggressive arousal. To avoid this source of ambiguity the perceived erotic and aggressive qualities of each passage were measured. Finally, the passages had to be (1) arousing, (2) perceived to be arousing, and (3)

perceived to be appropriately erotic or violent when both passages were presented together. To test this final property, the passages were presented dichotically (simultaneous presentation of one passage to each ear) in one experimental condition.

Procedure

Twenty-four male introductory psychology students participated in partial fulfilment of a course requirement. Each subject was tested individually. The subjects were seated in a cubicle containing a television monitor on a table, a stereo headset, a response panel, and physiological equipment to measure pulse-rate and blood pressure. Pulse-rate was measured by clipping a transistorized, photo-receptor, blood-density, measuring device to the lobe of the subject's left ear. Signals from this device were filtered to reduce artifact in the signal, then amplified, and continuously recorded. A blood-pressure cuff was attached above the elbow of the left arm with a microphone placed on the inside of the cuff just above the inside of the elbow. A hose connected a tank of compressed air in the experimenter's control cubicle to the blood-pressure cuff and permitted the experimenter to inflate and deflate the cuff without re-entering the subject's cubicle. Output from the microphone was filtered for artifact, processed through a second channel on the amplifier, and recorded on the same continuous record as the pulse-rate data. The amplifier and recording equipment were also located in the control cubicle. Thus both physiological measures were collected without re-entering the subject's cubicle. Prior experience with this procedure indicated that some subjects reacted with a change in pulse-rate when the blood pressure cuff was inflated. For this reason, pulse-rate measures were always taken before blood pressure measures.

While the blood pressure cuff and earclip were being attached to the subject, the experimenter explained that the study involved measures of empathy and that the physiological data were required because people high in empathy tend to be physiologically more reactive than people low in empathy. As soon as the physiological apparatus was attached, the subjects put on their headset and the experimenter left the cubicle. All further instructions were pretaped and delivered over the headset.

The taped instructions informed the subjects that they would listen to one or two passages taken from novels and read onto tape. Their task was to become imaginatively involved ("Picture yourself as part of the action") and empathically involved ("Try to feel what the characters are feeling") with the passages. In addition, subjects were told that while they listened to the passage(s) words would appear on the television monitor. The subject was told to press one of two buttons labelled "yes" and "no" indicating whether or not the word "fits the passage you are listening to at this moment". An example was given to make this task clear. "If the passage was about a camping trip you should respond yes to the word chipmunk and no to the word skyscraper". Finally, the subjects were informed that they would hear five minutes of soft music before the passage(s) began. They were told this was intended to help them relax since imaginative and empathic involvement were facilitated by relaxation. Five minutes of quiet music were played over the headset (Simon & Garfunkel, Bridge Over Troubled Water; Cat Stevens, Oh Very Young). During the last minute of musical interlude, the first pulse-rate and blood pressure measures were collected.

After the music ended, the experimenter informed the subjects that a brief questionnaire would be administered before proceeding to listen

to the passage(s). The experimenter brought the questionnaire to the cubicle. The questionnaire maintained the cover story by asking how frequently the subject attended plays and films and how many novels he read. Subjects were asked the degree to which they generally became imaginatively and empathically involved with such mass media presentations. Finally the questionnaire stated that imaginative and empathic involvement were influenced by immediate feelings as well as long term tendencies. For this reason the subjects were asked to indicate "How you feel at this moment" on a series of seven-point Likert-type scales. Each scale followed a mood adjective (interested, nervous, irritated, relaxed, cheerful, aroused, upset, happy, angry, calm, and bored). Each of the eleven scales was ancored at the endpoints with 1 = "not at all" and 7 = "very much".

When the questionnaire was collected, the experimenter answered any questions the subject had about the precedure he was to follow while he listened to the passage(s). After the experimenter returned to his control cubicle, the subject was assigned to a passage presentation condition. Eight subjects were randomly assigned to each of the three passage presentation conditions: erotic passage, violent passage, or both passages presented dichotically. Four subjects in each of the erotic and violent passage conditions heard the passage over their left earphone while the remaining four subjects heard the passage over their right earphone. In the dichotic listening condition an equal number of subjects heard each passage over the right and left earphone. In the dichotic listening condition the onset of the two passages was simultaneous. Both passages were read by the same female voice. The second set of physiological measures was collected during the last minute of the passage presentation.

During the nine minutes the passages played, ninety words appeared on the monitor for approximately six seconds each. Since the passages were recorded on the two channels of the videotape, the words appeared at the same time during the passages for all subjects.

After hearing the passage(s), the subject completed a final questionnaire that asked questions about the subjects' imaginative and empathic involvement with the passage(s) and had the subject express his current feelings on the 11 mood items. The subject also indicated the degree to which he felt aroused by the passage to which he had listened and by the words presented on the screen. Finally the subject rated the degree to which he perceived the passage to be erotic, violent, enjoyable, and disgusting. Subjects who heard both passages answered the questions for each passage seperately. All of these measures were obtained using seven-point Likert-type scales with 1 = not at all and 7 = very much. (The questionnaires are reproduced in Appendix A).

Results and Discussion

The dependent measures of interest were pulse-rate, blood pressure, and responses to the mood items. All measures were analysed using a 3 (passage presentation) X 2 (before vs after hearing the passages) analysis of variance with the latter factor within subjects. The blood pressure data revealed no significant effects (all Fs<1)[3]. The pulse-rate data indicated that the passages were arousing. Table 1 contains the mean pulse-rate data for each condition. Although there were no differences among passage presentation conditions ($F_{2, 21} = 1.82$, ns), there

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3 After completing the experiment, the blood pressure equipment was found to be unreliable and no further mention of the blood pressure data will be made.

Table 1

Mean Pulse-Rate Before and After Listening to an Erotic Passage, a Violent Passage, or Both Passages Presented Dichotically

	Passage Presentation		
	Erotic	Violent	Dichotic Listening
Before	66.5a	66.6a	66.9a
After	74.4b	75.1b	83.1c

Note: Means not sharing a common subscript differ by Duncan's Multiple Range Test ($p<.05$).

was a significant increase in pulse-rate from the end of the musical interlude to the end of the passages ($F_{1, 21} = 40.54$, $p<.001$, $omega^2 = .62$). Although the passage presentation by time of measurement interaction was not significant ($F_{2, 21} = 2.49$, ns), the Duncan's analyses revealed that listening to both passages dichotically was significantly more arousing than listening to either passage separately. The erotic and violent passages did not differ in their ability to arouse the subjects. The subjects' self-ratings of mood indicated that they were aware of the change in their arousal level. The mean mood item ratings before and after hearing the passages are presented in Table 2. Again there were no differences among passage presentation conditions but subjects reported themselves significantly more irritated, aroused, upset, and angry after than before hearing the passages. The subjects also described themselves as significantly less cheerful and happy and somewhat less relaxed after hearing the passages than before. Apparently being aroused by either the erotic or the violent passage was slightly unpleasant and annoying. Specific contrasts of self-ratings on the mood items by subjects in the single passage only conditions failed to produce any effects that approached significance. Also there were no significant interactions of passage content with time of mood ratings (before or after hearing the passages). There were no significant effects for the remaining mood items (interested, nervous, calm, and bored). Although these four items were used in the questionnaire in all three experiments, no significant effects were obtained for them and they are not mentioned further. Similarly, subjects in all three experiments rated the words appearing on the screen as non-arousing. The means in all conditions were less than two on the seven point scale, possibly indicating that the words were

Table 2

Experiment 1: Mean Self-Ratings[a] on Seven Mood Items Before and After Hearing Arousing Passages

Mood Item	Before	After	$F_{1, 21}$	$Omega^2$
Irritated	1.62	2.17	4.68**	.13
Aroused	2.79	3.75	8.58***	.23
Upset	1.67	2.38	4.37**	.13
Angry	1.50	2.33	5.73**	.15
Relaxed	4.50	3.92	3.17*	.09
Cheerful	4.00	3.29	5.17**	.15
Happy	4.38	3.50	14.13***	.30

[a]Each adjective was rated as self-descriptive on a scale from 1 = not at all to 7 = very much.

* $p<.10$

** $p<.05$

*** $p<.01$

not a plausible source of arousal regardless of whether or not they actually influenced the subjects' level of arousal.

The subjects uniformly attributed their experienced arousal to the passages. The differences in subjects' attributions of arousal to the erotic and violent passages did not approach significance ($F<1$). Thus the erotic and violent passage were both arousing and perceived to be arousing and the two passages did not differ significantly in their ability to arouse male subjects.

The mean ratings of passage content, ratings of enjoyment, and ratings of disgust are presented in Table 3. Subjects reported that the erotic passage was significantly more erotic than the violent passage and that the violent passage was significantly more violent than the erotic passage. The erotic passage was also perceived to be more enjoyable and less disgusting than the violent passage. The two passages were adequate stimuli to test the salience hypothesis. Regardless of whether the passages were presented seperately or in combination, the passages increased physiological arousal and subjects' perceptions of arousal.

Experiment 2

A means of altering the relative salience of the two passages was the focus of the second experiment. One possible method of manipulating the salience of the passages was to present erotic and/or violent words on the television monitor while the subjects were listening to the passages. Intuitively, erotic words might lead subjects to attend more to the erotic passage and violent words might lead subjects to attend more to the violent passage thus manipulating passage salience. However all erotic and violent words may not be equally effective for this purpose. Neutral words might be useful as cues if they are associated with a pas-

Table 3

Experiment 1: Mean Ratings[a] of the Erotic and Violent Passages

Between Subjects Comparison (Single Passage Subjects Only)

Rated Variable	Passage Content		$F_{1, 14}$	$Omega^2$
	Erotic	Violent		
Erotic	5.50	1.12	121.52***	.89
Violent	2.00	6.38	53.92***	.77
Enjoyable	4.75	3.12	3.85*	.15
Disgusting	1.88	4.88	19.56***	.54

Within Subjects Comparison (Dichotic Presentation Subjects Only)

Rated Variable	Passage Content		$F_{1, 14}$	$Omega^2$
	Erotic	Violent		
Erotic	5.88	1.12	178.18***	.92
Violent	2.00	6.50	114.08***	.88
Enjoyable	4.75	3.12	5.83**	.23
Disgusting	2.50	4.25	8.81***	.33

[a]All ratings were made on scales from 1 = not at all to 7 = very much.

* $p < .10$

** $p < .05$

*** $p < .01$

sage while erotic and violent words not assoicated with a passage may have low cue value.

Rather than selecting words intuitively, an empirical attempt was made to sort a relatively large set of words into those useful and those not useful as cues to enhance the salience of each passage. Since salient stimuli appear to be better remembered (more available and/or accessible), words that were better remembered were assumed to be more salient. Further, it was expected that the salient (remembered) words would enhance the salience of their associated passage; i.e. that the word-passage salience relation was reciprocal. A useful cue word should be associated with only one of the passages and be more likely to be remembered and more easily remembered when presented with one of the passages. In the second experiment subjects listened to either the erotic or the violent passage and observed a list of words as in the first experiment. By obtaining measures of memory for the words presented, the word list could be divided into four categories. Some words would not be remembered well while others would be remembered well by the subject. Of particular interest were any words remembered well by subjects listening to one passage but poorly by subjects listening to the other passage. Words remembered better after a particular passage were assumed to have some association with the passage. Words remembered well by subjects listening to the erotic but not the violent passage might provide cues enhancing the salience of the erotic passage. Words remembered well by subjects listening to the violent but not the erotic passage might provide cues enhancing the salience of the violent passage. Words remembered equally well or poorly regardless of the passage heard should not alter the relative salience of the passages.

Procedure

Twenty male introductory psychology students participated in partial fulfilment of a course requirement. One to four subjects participated in each session. When the subjects arrived at the laboratory they were taken to separate cubicles. Each cubicle contained a television monitor on a table, a head set, a response panel, and two envelopes labelled questionnaire 1 and questionnaire 2. The subjects were asked to refrain from looking at the contents of the two envelopes left on the table in the cubicle with them since these envelopes contained questionnaires to be completed at specific times during the procedure. Then the subjects were asked to put the headset on as all instructions were pretaped.

The pre-recorded instructions were identical to those used in the first experiment. The procedure was changed only slightly. First, the dichotic listening condition was omitted. Second, the questionnaires following the music and the passages were placed in the previously described envelopes. At the appropriate times the subjects were instructed to take out the questionnaires and respond to them. Third, data were collected to measure memory for the words shown on the screen. Recall, recognition, and response latency to recognition data were collected for each word. An additional page was added to the second questionnaire instructing the subject to write down as many words as he could remember from the list presented on the screen (recall measure). After completing the second questionnaire, the subjects were shown a list of pairs of words on the television monitor. One word from each pair was taken from the list shown during the passage presentation while the other was a "new" word. The subjects were told to respond to each pair of words even

if they had to guess. In addition, the equipment provided a measure of response latency to recognition. Timers were triggered by an audio signal on the videotape when the word pair appeared on the screen and were stopped by a relay triggered by the subjects' responses. The word list consisted of 30 erotic, 30 neutral, and 30 violent words drawn from lists published in Paivio, Yuille, and Madigan (1968). The three types of words were balanced for frequency, imagery, concreteness, and meaningfulness. The word lists are provided in Appendix B.

Results and Discussion

The subjects' mood self-ratings are summarized in Table 4. The subjects rated themselves significantly more upset and somewhat more irritated and angry after, as compared to before, hearing the passages. The subjects were also less cheerful and happy after hearing the passages. Once again listening to either the erotic or the violent passage seemed to be slightly unpleasant. Subjects who had listened to the violent passage rated themselves significantly more irritated than subjects who had listened to the erotic passage ($\bar{X}_E = 1.17$, $\bar{X}_V = 2.12$; $F_{1, 18} = 5.24$, $p < .05$, $\text{omega}^2 = .17$). There were no other significant effects or interactions involving the passage content variable. Although the effects were not as strong as those found in the first experiment, the passages appear to have aroused the subjects slightly. The data indicating that the passages were perceived to be appropriately erotic and violent are summarized in Table 5. Again the erotic passage was rated more enjoyable and less disgusting that the violent passage.

The recall, recognition, and response latency to recognition data were used to separate the 90 words into four categories. Each of the three types of data were divided at the median. A word was classified as

Table 4

Experiment 2: Mean Self-Ratings[a] on Seven Mood Items Before and After Hearing Arousing Passages

Mood Item	Before	After	$F_{1, 18}$	$Omega^2$
Irritated	1.33	1.96	3.45*	.12
Aroused	3.04	3.38	1	.00
Upset	1.21	1.96	6.67**	.26
Angry	1.17	1.75	3.77*	.14
Relaxed	4.50	3.92	1.76	.04
Cheerful	3.88	2.96	10.61***	.32
Happy	4.12	3.42	4.89**	.16

[a]Each adjective was rated as self-descriptive on a scale from 1 = not at all to 7 = very much.

* $p < .10$

** $p < .05$

*** $p < .01$

Table 5

Experiment 2: Mean Ratings[a] of the Erotic and Violent Passages

Rated Variable	Passage Content		$F_{1, 18}$	$Omega^2$
	Erotic	Violent		
Erotic	5.60	1.70	66.78**	.77
Violent	1.70	6.70	137.64**	.87
Enjoyable	4.90	2.30	9.97**	.31
Disgusting	2.50	4.10	3.38*	.13

[a]All ratings were made on scales from 1 = not at all to 7 = very much.

* $p < .10$

** $p < .01$

belonging in a category if at least two of the three measures (recall, recognition, and response latency to recognition) resulted in the same categorization. All 90 words met the criterion for classification in one of the four categories. Words were considered remembered well if they were above the median for recall and recognition and below the median for response latency to recognition. Words that were remembered well or poorly regardless of the passage subjects heard were considered high or low respectively in cue salience for both passages. Words remembered well by subjects hearing the erotic passage but not remembered well by subjects hearing the violent passage were considered high in cue salience for the erotic passage but low in cue salience for the violent passage. The remaining words were remembered well by subjects hearing the violent passage but not remembered well by subjects hearing the erotic passage. These words were considered high in cue salience for the violent passage but low in cue salience for the erotic passage. For words in the final two categories, memory was influenced by the passage heard. These two categories present the properties required to test the salience-labelling aspects of the cognitive labelling hypothesis - the cues were well remembered but only when associated with one of the sources of arousal. The distribution of the words into the four categories is summarized in Table 6. A minimum of 20 words were in each category.

Each category included words of all three types: erotic, neutral, and violent. For example, the list of words remembered well after hearing the erotic passage but poorly after hearing the violent passage included: (1) breast and passion from the erotic word list, (2) appearance and exhaustion from the neutral word list, and (3) brutality and victim from the violent word list. The list of words remembered poorly after

Table 6

Frequency of Erotic, Neutral, and Violent Words Placed in Four Cue-Salience Categories (High or Low Salience by Erotic or Violent Content)

	Cue-Salience Category			
Word Type	Erotic High Violent High	Erotic High Violent Low	Erotic Low Violent High	Erotic Low Violent Low
Erotic	9	11	3	7
Neutral	7	6	7	10
Violent	10	5	10	5
Total	26	22	20	22

hearing the erotic passage but well after hearing the violent passage included: (1) flesh and jealousy from the erotic word list, (2) determination and stain from the neutral word list, and (3) hatred and skull from the violent word list. The distribution of the words into the four categories may reflect possible associations that some word had with the passages. For example, stain may have been better remembered after hearing the violent passage because it could be associated with "blood". However, some words were remembered well after hearing one passage rather than the other even though no apparent association was present. For example, table was remembered best if the subject had heard the violent passage even though the events described in the passage occur outdoors and no table is ever mentioned. Words remembered well after hearing either passage included kiss, marriage, cellar, refrigerator, blood, and extermination. Words remembered poorly after hearing either passage included gender, charm, bird, valley, trouble, and hostility.

The word lists used in the final experiment included 20 words sampled from the four categories in such a way that the proportion of erotic, neutral, and violent words was as close as possible to the obtained values in Table 6. In addition, the four twenty-word lists did not differ significantly from each other on imagery, concreteness, meaningfulness, nor frequency ($F < 1.85$ in all cases).

Since the cue words high in salience for the erotic passage were not all erotic words, these words were referred to as high-salience erotic-cue words. Similarly, the cue words high in salience for the violent passage were not all violent words and were referred to as high-salience violent-cue words. The reader is cautioned to keep in mind that erotic-cue words were expected to have cue value with regard to the erotic passage and violent-cue words were expected to have cue value with regard to

the violent passage regardless of the erotic, neutral, or violent nature of the words themselves.

Experiment 3

The two previous experiments provided appropriate arousing stimuli and salience cues. In Experiment 3 the cognitive-labelling hypothesis was tested. Subjects were presented with both passages and one of the four sets of cue-salience words in an attempt to manipulate the salience of the passages. The two passages were presented dichotically (simultaneously, one to each ear). The decision to present the passages dichotically was based on a number of considerations. (1) In previous research (e.g. Donnerstein, Donnerstein, & Evans, 1975) the order of presentation of arousing stimuli influenced attributions of arousal and subsequent behavior. Presenting the passages sequentially might have involved two manipulations of salience - the cue words and the order of presentation. The passages were presented dichotically to simplify the interpretation of the results. (2) The dichotic presentation forced subjects to attend to only one of the stimuli at a time. This forced choice aspect of the task permitted the use of memory for passage content and proportion of erotic and violent words described as fitting in the passages as indications of the attention directed toward each passage. Such data would be more difficult to interpret with a sequential presentation. (3) Dichotic listening has been used as a paradigm to investigate selective attention to one of a pair of stimuli. The concept of salience clearly deals with the phenomenon of selective attention since more salient stimuli are predicted to draw more attention. (4) Since selective attention studies frequently reveal differences in memory for attended as compared to unattended stimuli presented dichotically, memory for passage content

should have been a reasonable indicator of the passage to which the subject attended. (5) The first experiment in this series demonstrated that dichotic presentation of passages was arousing, did not interfer with the subjects' perception of the erotic or violent content of the passages, and could be used with presentation of a word list on television monitors without interfering with any of the requirements of testing the cognitive-labelling hypothesis. Finally (6) dichotic presentation provided an opportunity to test the cognitive labelling hypothesis in a paradigm for which excitation transfer theory could not predict a misattribution result.

Procedure

Forty-six male introductory psychology students participated in partial fulfilment of a course requirement. The prccedure for this experiment was similar to experiment 2. There were three changes: First, all subjects heard the passages dichotically. Second, each subject was randomly assigned to one of four conditions. In each of the four conditions one of the four sets of twenty cue-words was presented. In one condition the words were high in cue-salience for both the erotic and the violent passages while a second condition used words low in cue-salience for both passages. In the remaining two conditions erotic high-violent low and erotic low-violent high cue-salience word sets were presented. Third, recognition and response latency data were not collected. The subjects in each condition were exposed to different words and the duration of exposure to each word was approximately 25 seconds. The small number words (20) and long exposure time would almost certainly have produced a ceiling effect for recognition of the words; that is, most subjects would have remembered all of the words quite well. Instead

a 20 item, multiple choice questionnaire testing the subjects' memory for the content of the passages was administered. Memory for the content of the passages was expected to be related to the salience of the passages. Each subject should have remembered more about the passage he found most salient. Half of the subjects in each condition responded to the ten items for the erotic passage first while the remainder of the subjects responded to the ten items for the violent passage first. The passage content questions are reproduced in appendix A. Half of the subjects in each condition heard the erotic passage through the left (right) earphone and the violent passage through the right (left) earphone.

Results and Discussion

There were 10 subjects per cell when the study was completed. The data from the other six subjects were not considered in the analyses. One subject did not see the words on the screen during the passages due to an equipment failure. The remaining subjects were eliminated for failing to follow instructions: three subjects looked at the questionnaires before they were instructed to do so and two subjects did not complete the questionnaires properly.

Mood Scale Data The subjects felt that they were aroused by the passages. The mean mood self-ratings are presented in Table 7. The subjects reported being significantly more aroused, upset, and angry after, as compared to before, hearing the passages. They also reported being significantly less relaxed and cheerful and marginally less happy after, as compared to before, hearing the passages. Since each subject listened to both passages, it was not possible to determine if the subjects' mood was differentially affected by the erotic and violent passages. The erotic-cue and violent-cue word lists had no apparent effect on the sub-

Table 7

Experiment 3: Mean Self-Ratings[a] on Seven Mood Items Before and After Hearing Arousing Passages

Mood Item	Before	After	$F_{1, 36}$	$Omega^2$
Irritated	1.90	2.38	2.81	.04
Aroused	3.30	4.52	19.75***	.32
Upset	1.55	2.48	24.11***	.33
Angry	1.50	2.00	7.69***	.15
Relaxed	5.10	4.00	15.39***	.27
Cheerful	4.28	3.75	9.86***	.17
Happy	4.48	4.05	3.58*	.06

[a]Each adjective was rated as self-descriptive on a scale from 1 = not at all to 7 = very much.

* $p < .10$

** $p < .05$

*** $p < .01$

jects' perceptions of arousal. The word lists produced no significant main effects or interactions on any of the mood items.

Listening Behavior Subjects were expected to vary in their tendency to listen to the two passages depending upon experimental condition. Three measures can be used to indicate to which passage the subjects listened: (1) Subjects were asked to which passage they listened most. (2) The responses of the subjects to the questions regarding whether or not the violent, neutral, and erotic words fit in the passages to which they were listening were used to infer what proportion of time the subjects listened to each passage. (3) The subjects' memory for the content of each passage was used to infer how much attention the subjects paid to each passage.

The subjects' self reports indicated that the high- versus low-salience erotic-cue words had no effect on their tendency to listen to one passage rather than to the other ($F = 0$ for both the main effect and the interaction with violent-cue words). However, exposure to the high-salience violent-cue words led to a significantly greater proportion of subjects reporting that they "listened most" to the violent passage than did exposure to the low-salience violent-cue words (.70 versus .20 respectively, $F_{1, 36} = 12.50$, $p < .01$, $\text{omega}^2 = .22$). The manipulation of salience by the cue words appeared to be only partially successful.

Responses to the task of indicating whether or not words "fit" in the passage further support the conclusion that the salience manipulation was only partially successful. Salience of violent-cue words interacted significantly with word type ($F_{2, 36} = 4.21$, $p < .05$, $\text{omega}^2 = .08$). The mean percentage of erotic, neutral, and violent words described as fitting in the passage to which the subject was listening are presented in

Table 8. Erotic words were described as fitting in the passage proportionately less often when high-salience violent-cue words were presented than when low-salience violent-cue words were presented with the passages. When the high-salience violent-cue words were presented with the passages, the erotic words were significiantly less likely than violent words to be described as belonging in the passage to which the subject was attending.

Mean memory for the content of the erotic and violent passages by subjects exposed to high- and low-salience violent-cue words is presented in Table 9. Analysis of memory for passage content revealed that the erotic passage was remembered better than the violent passage when low-salience violent-cue words were presented (interaction $F_{1, 36} = 6.97$, $p < .05$, $\text{omega}^2 = .13$). The content of the erotic passage was better remembered when low-salience violent-cue words were presented than when high-salience violent-cue words were presented. Salience of erotic-cue words did not influence memory for passage content.

To summarize, manipulation of the cue-salience of words associated with the violent passage produced the expected effects. Presenting words that were remembered well by subjects listening to the violent passage increased the probability that subjects exposed to both passages dichotically would (1) listen to the violent passage as indicated by the self report data and decisions of which words fit in the passages; and (2) remember more of the content of the violent passage. Unfortunately the cue-salience manipulation with regard to words remembered well by the subjects listening to the erotic passage did not influence these variables. Thus, the evidence is mixed with regard to the success of this attempted manipulation of salience.

Table 8

Mean Percentage of Erotic, Neutral, and Violent Words Subjects Indicated "Fit" in the Passage To Which They Were Listening in Experiment 3

Violent-Cue Words	Word Type		
	Erotic	Neutral	Violent
High Salience	38.9bc	26.2cd	62.7a
Low Salience	57.6a	18.8d	47.1ab

Note: Means not sharing a common subscript differ (.05) by Duncan's Multiple Range Test.

Table 9

Mean Memory Test Scores[a] for the Content of the Erotic and Violent Passages

Violent-Cue Words	Content	
	Erotic	Violent
High Salience	2.30b	3.50ab
Low Salience	4.10a	2.70b

[a]Scores could range from 0 to 10 correct responses to questions about the respective passage contents.

Note: Means not sharing a common subscript differ (.05) by Duncan's Multiple Range Test.

Attributions of Arousal Subjects in the high-salience violent-cue words conditions were expected to attribute relatively more arousal to the violent passage and less arousal to the erotic passage than subjects in the low-salience violent-cue words conditions. Similarly, subjects in the high-salience erotic-cue words conditions were expected to attribute more arousal to the erotic passage and less arousal to the violent passage than subjects in the low-salience erotic-cue words conditions. In other words, salience of violent-cue and erotic-cue words and passage content were expected to interact in their influence on attributed arousal. A significant violent-cue words by passage content interaction ($F_{1, 36} = 4.31$, $p < .05$, $\text{omega}^2 = .08$) was found for subjects' attributions of arousal to the passages. The mean attribution of arousal to passages is presented in Table 10. The erotic-cue words failed to produce the predicted effects on attributions of arousal ($F < 1$ for both the main effect and the interaction). The salience of violent-cue words influenced attributions of arousal to the passage as predicted. However, the attribution of arousal data indicated that the manipulation of passage salience was only successful for the violent passage.

The degree of attention paid to the passage should have influenced the tendency to attribute arousal to the passage. Regardless of their reason for doing so, subjects who attended more to the erotic than the violent passage were expected to attribute more of their arousal to the erotic than the violent passage. Similarly, subjects who attended more to the violent than to the erotic passage were expected to attribute more of their arousal to the violent than to the erotic passage. Even though the manipulations of salience using the erotic-cue words apparently failed, attributions of arousal to the erotic or violent passage should have

Table 10

Mean Arousal Attributed[a] to the Erotic and Violent Passages by Subjects Exposed to High vs Low-Salience Violent-Cue Words

Violent-Cue Words	Passage Content	
	Erotic	Violent
High Salience	3.25ab	3.20ab
Low Salience	4.30a	2.35b

[a]Based on subjects self-ratings of arousal due to each passage on a scale from 1 = not at all to 7 = very much.

Note: Means not sharing a common subscript differ (.05) by Duncan's Multiple Range Test.

been positively correlated with the percentage of erotic or violent words described as belonging in the passages. The data supported this reasoning for both the erotic passage ($r = .49$, $p < .01$) and the violent passage ($r = .45$, $p < .01$). Significant correlations of memory for passage content and attributed arousal also should have been found. Again the data for the erotic passage ($r = .55$, $p < .001$) and for the violent passage ($r = .26$, $p < .05$ one-tailed) supported this reasoning.

Relative to presenting low-salience violent-cue words, presenting high-salience violent-cue words increased (1) the proportion of subjects attending to the violent passage, (2) memory for the content of the violent passage, and (3) arousal attributed to the violent passage. This pattern of results was exactly as predicted by the cognitive-labelling hypothesis. Providing cues that altered the relative salience of two sources of arousal apparently led more subjects to attend to one of the sources with resultant increases in memory for, and attributions of arousal to the more salient stimulus. Since the operationalization of cue salience was independent of memory for stimulus properties (content) and labelling (arousal attributed to the passages), these results provide support for the salience model uncontaminated by the circular reasoning of post hoc interpretations. Unfortunately, the failure to obtain this pattern of results for erotic-cue words clouds the issue.

The presence and consistency of the results for the violent-cue words combined with the lack of significant results for the erotic-cue words was puzzling. Both sets of words were established using the same empirical procedure. One possible interpretation of the results is that the erotic passage was inherently more salient than the violent passage. Due to the high initial salience of the erotic passage the erotic-cue

words had little impact. Whenever the high-salience violent-cue words were presented the salience of the violent passage was increased relative to the salience of the erotic passage and the violent passage competed successfully for the attention of the subjects. In the absence of high-salience violent-cue words the subjects' attention was drawn to the inherently more salient erotic passage.

Some evidence consistent with the view that the erotic passage was more salient than the violent passage was found. The erotic passage was consistently rated as more enjoyable than the violent passage. This may have been the result of a higher quality of writing of the erotic passage, drawn from a literary classic (Lady Chatterly's Lover), compared with the violent passage drawn from a recent novel (The Stand). Alternatively, erotica may generally be a more interesting and engrossing subject than violence for a college male audience. Regardless of the specific reason, a more enjoyable passage might be more salient. However, some evidence also was found to indicate that the passages did not differ in salience. Each of the eight subjects in the dichotic listening condition of experiment 1 rated the erotic passage more enjoyable and less disgusting than the violent passage. Four of these subjects reported that they listened most to the erotic passage while the remaining four subjects reported that they listened to the violent passage. This result supports the view that the passages did not differ in initial salience.

Perhaps there is a more plausible explanation of the results. Both passages were initially equal in salience and the violent-cue words succeeded in altering the salience of the violent passage. But why did the high- and low-salience erotic-cue words fail to influence the salience of the erotic passage? Examining the lists of erotic and violent words

employed may provide some clues. Intuitively, the violent words seem to have been more violent than the erotic words were erotic. Some of the words on the erotic list are gender related rather than erotic per se (e.g. woman) while others reflect positive feelings not necessarily related to erotica (e.g. pleasure). These words were included because they seemed to be more related to erotica than other words in the Paivio et. al. lists. The words were selected from the restricted range provided by Paivio et. al. to assure that the final word lists did not differ in frequency, imagery, concreteness, and meaningfulness. In retrospect, this restriction may have diminished the impact of erotic words. Although each of the four categories of cue words employed in experiment 3 included erotic, neutral, and violent words, the erotic words may not have been as effective as the violent words simply because they were not good exemplars of the category "erotic word". Stronger effects might have been obtained by permitting other word characteristics to vary (frequency, etc.) while assuring that the erotic nature of words on the erotic list was maximized. Effects of frequency, imagery, concreteness, and meaningfulness could have been removed statistically as covariates or explored as potentially interesting influences on the cue-salience value of the words.

General Discussion

The purpose of this sequence of studies was to test the cognitive-labelling hypothesis proposed by Rule, Ferguson, and Nesdale (1979). The data from all three experiments provide substantial evidence that the passages used as stimuli were arousing and that the subjects perceived themselves to be aroused after listening to the passages. Therefore, the failure of the erotic-cue words to alter the subjects' listen-

ing behavior cannot be attributed to the use of inappropriate arousing stimuli. Two other possible explanations of the failure to obtain the cognitive-labelling effect using the erotic-cue words are (1) that the cognitive-labelling hypothesis is incorrect and (2) that the erotic-cue words failed to manipulate salience. If the cognitive-labelling hypothesis is incorrect, then the high-salience versus low-salience violent-cue words should not have produced the consistent differences in listening behavior, memory, and attributions of arousal found in experiment 3. As stated previously, the consistency of the differences between the high- and low-salience violent-cue word conditions combined with the fact that the obtained differences were all in the predicted direction strongly supports the view that the salience of the violent passage was successfully manipulated.

In addition, the cognitive-labelling hypothesis correctly predicted that misattribution of arousal could occur even when the sources of arousal were presented simultaneously. The men in the dichotic listening conditions of the first and third experiments were simultaneously exposed to four potential sources of arousal: the erotic passage, the violent passage, the words on the screen, and the dichotic listening task itself. The pulse-rate data from the first experiment indicates that this combination of stimuli generated more arousal than did either of the passages combined with the words on the screen. In spite of this evidence that multiple sources contributed to their total arousal, none of these men attributed arousal to the words, the unattended passage or the dichotic listening task. Their experienced arousal was consistently attributed only to the passage they felt they had attended to most.

The most reasonable interpretation of the obtained results would

appear to be that the cognitive-labelling hypothesis is correct but that the salience of the erotic passage was not manipulated. Further research employing a better sample of erotic words might successfully produce the salience-attribution of arousal effect for the erotic-cue words.

Assuming that the cognitive-labelling hypothesis is correct, what are the implications of this position for research in the aggression area? The Rule et. al. position extends the recent trend toward a misattribution-multiple sources of arousal approach. Any source of arousal is likely to enhance the probability and intensity of subsequent aggression <u>if</u> the generated arousal is attributed to anger. However, any non-aggressive source of arousal, such as erotica, provides an alternative explanation for arousal. If a person attributed experienced arousal to the non-aggressive source subsequent aggression is less likely and less intense. Donnerstein, Donnerstein, and Evans (1975) obtained data that reflected exactly the pattern just described. Experimental subjects who were first angered and then exposed to erotica attributed their arousal to the erotica and were non-aggressive. Other subjects were exposed to the erotica before being angered. These subjects attributed their arousal to anger and were quite aggressive. Apparently Donnerstein et. al.'s subjects felt that the stimulus presented second was more salient (a recency effect) and attributed their arousal to the more salient source. Thus, to predict a person's aggressive behavior requires knowledge of the source to which the person will attribute arousal.

The cognitve- labelling hypothesis provides a mechanism (relative salience) for predicting the source to which arousal will be attributed. Arousal will be attributed to the most salient, plausible source of arousal in the environment. But how can the salience of plausible sources

be evaluated? One method would pit two stimuli against each other, such as erotica and insult, and provide subjects with alternative response modes, such as dating or fighting. If the experimental subjects chose to date then erotica would be presumed to be more salient. If the experimental subjects chose to fight, then insult would be presumed to be more salient. Unfortunately, such experiments would be difficult, if not impossible, to conduct ethically.

The cognitive-labelling hypothesis provides an alternative means of exploring the probable response to multiple sources of arousal. If more salient stimuli draw attention and are more likely to be perceived as causes, and if salient stimuli are better remembered than nonsalient stimuli, then measuring attention to and memory for sources of arousal should indicate the relative salience of the arousing stimuli. More research is required to identify the properties of arousing stimuli that make them relatively salient. Predicting aggression in situations involving mulitple sources of arousal may be possible if the properties that make stimuli salient can be systematically identified.

After all of this discussion, Bob's behavior at the party still cannot be predicted. Although Bob will probably attribute his arousal to the most salient stimulus, there is no way of determining <u>a priori</u> (before Bob acts) which stimulus was more salient. The cognitive-labelling hypothesis improves our understanding of the relationship of arousing stimuli to aggressive behavior. Continued exploration of the properties that make stimuli salient is essential to both the acedemic understanding of aggressive behavior and the reduction of aggression in applied settings.

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Appendix A

Questionnaires used in the three experiments.

1. Imaginative Involvement Questionnaire - used in all experiments (1 pg)
2. Reactions to Passages Questionnaire - used in all experiments (2 pp)
3. Recall of Words from Lists - used in all experiments except Experiment 1 (1 pg)
4. Recall of Passage Content - used only for Experiment 3 (4 pp)

Imaginative Involvement Questionnaire

CIRCLE ONE NUMBER IN RESPONSE TO EACH QUESTION

1. How many novels have you read for pleasure in the last month?

   0 1 2 3 4 5 6+

2. How many movies have you attended in the last month?

   0 1 2 3 4 5 6+

3. How many plays have you attended in the last month?

   0 1 2 3 4 5 6+

4. To what extent do you find you <u>empathize</u> with characters (i.e. feel what the character feels) in movies, novels, and plays?

   NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

5. To what extent do you get imaginatively involved in novels, movies, or playes (i.e. feel "part of the action")?

   NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

6. The questions above are intended to tap your usual imaginative involvement in mass media entertainment. Hówever, your current feelings can also influence imaginative involvement. To what extent are you <u>currently</u> feeling

   (a) interested NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (b) nervous NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (c) irritated NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (d) relaxed NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (e) cheerful NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (f) aroused NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (g) upset NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (h) happy NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (i) angry NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (j) calm NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (k) bored NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

Reaction To Passages

1. Check the type(s) of passage(s) you heard.

   _____ erotic

   _____ scientific

   _____ travelogue

   _____ violent

2. Which passage did you listen to most (if you heard only one passage simply check the appropriate passage)?

   _____ erotic

   _____ scientific

   _____ travelogue

   _____ violent

3. To what extent did you empathize with the characters in the passage you listened to most?

   NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

4. To what extent did you empathize with the characters in the passage you listened to least?

   NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

5. To what extent were you imaginatively involved in the passage you listened to most?

   NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

6. To what extent were you imaginatively involved in the passage you listened to least?

   NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

7. To what extent did you experience each of the following while listening to the passages?

   (a) interested NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (b) nervous NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (c) irritated NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

   (d) relaxed NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

(e) cheerful NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

(f) aroused NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

(g) upset NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

(h) happy NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

(i) angry NOT AL ALL 1 2 3 4 5 6 7 VERY MUCH

(j) calm NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

(k) bored NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

8a. To what extent were you aroused by the passage you listened to most?

NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

8b. To what extent were you aroused by the passage you listened to least?

NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

9. To what extent were you aroused by the words on the screen?

NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

10. How erotic was the passage you listened to:

(a) most NOT AT ALL 1 2 3 4 5 6 7 VERY EROTIC

(b) least NOT AT ALL 1 2 3 4 5 6 7 VERY EROTIC

11. How violent was the passage you listened to:

(a) most NOT AT ALL 1 2 3 4 5 6 7 VERY VIOLENT

(b) least NOT AT ALL 1 2 3 4 5 6 7 VERY VIOLENT

12. How enjoyable was the passage you listened to:

(a) most NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

(b) least NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

13. How disgusting was the passage you listened to:

(a) most NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

(b) least NOT AT ALL 1 2 3 4 5 6 7 VERY MUCH

PLEASE PRINT AS MANY WORDS AS YOU CAN REMEMBER FROM THE WORD LIST. PRINT ONE WORD PER LINE. PRINT ONLY WORDS WHICH YOU SAW ON THE SCREEN.

1 _____
2 _____
3 _____
4 _____
5 _____
6 _____
7 _____
8 _____
9 _____
10 _____
11 _____
12 _____
13 _____
14 _____
15 _____
16 _____
17 _____
18 _____
19 _____
20 _____
21 _____
22 _____
23 _____
24 _____
25 _____

26 _____
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28 _____
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32 _____
33 _____
34 _____
35 _____
36 _____
37 _____
38 _____
39 _____
40 _____
41 _____
42 _____
43 _____
44 _____
45 _____
46 _____
47 _____
48 _____
49 _____
50 _____

CIRCLE ONE RESPONSE TO EACH QUESTION FROM THIS PASSAGE - VIOLENT PASSAGE

1. In which direction did Bobby Terry decide he should flee?

   (a) north
   (b) east
   (c) south
   (d) west

2. The Walking Dude claimed he wanted the judge sent back

   (a) alive
   (b) dead
   (c) mutilated
   (d) undamaged

3. What did the Judge aspirate with his final breath?

   (a) gunpowder fumes
   (b) drumming rain
   (c) blood
   (d) teeth

4. What is the Walking Dude's name?

   (a) Flagg
   (b) Faris
   (c) Roberts
   (d) he's never reffered to by name

5. Bobby Terry's grin was described as resembling

   (a) a Cheshire cat
   (b) a mechanical funhouse clown
   (c) a kid in a candy store
   (d) none of the above

6. Which character suffered from arthritis?

   (a) Bobby Terry
   (b) Dave Roberts
   (c) Faris
   (d) The Walking Dude

7. Who killed Dave Roberts?

   (a) the Judge
   (b) the Walking Dude
   (c) Bobby Terry
   (d) Roberts wasn't killed

8. What were the dark man's cheeks flushed with?

   (a) rage
   (b) anticipation
   (c) resentment
   (d) jolly colour

9. Bobby Terry fired three times in rapid succession at the Judge. The three bullets

   (a) all missed
   (b) the first one missed, the other two hit the judge in the face
   (c) the first one hit the judge in the stomach, the others in the face
   (d) the first hit the judge in the face, the others missed

10. What type of vehicle was the Judge driving?

   (a) a Scout
   (b) a Willys
   (c) a Ford
   (d) a camper

CIRCLE ONE RESPONSE TO EACH QUESTION FROM THIS PASSAGE - EROTIC PASSAGE

1. What did Connie hate?

   (a) rain
   (b) him
   (c) despair
   (d) flowers

2. Where had Connie learned to dance so long ago?

   (a) at school
   (b) in the woods
   (c) London
   (d) Dresden

3. Where did the couple have intercourse?

   (a) on the path, in the rain
   (b) in a hut, on the rug
   (c) in bed, on the damp sheets
   (d) in front of the fireplace

4. Why did he say "we shall quarrel"?

   (a) she was leaving him
   (b) they were drying themselves on the same towel
   (c) she didn't want to have sex with him
   (d) he didn't want to marry her

5. What were they wrapped in as they sat in front of the fire?

   (a) a wet towel
   (b) a wet sheet
   (c) an army blanket
   (d) warm, dry clothes

6. What part of Connie's anatomy fascinated him today?

   (a) her breasts
   (b) her haunches
   (c) her hair
   (d) her eyes

7. What type of flowers did he thread in Connie's hair?

   (a) forget-me-nots
   (b) pansies
   (c) daisies
   (d) a single rose

Appendix B

Lists of erotic, neutral, and aggressive words used as stimuli in the experiments.

Erotic Words	Neutral Words	Violent Words
affection	algebra	agony
amour	appearance	anxiety
bosom	belief	army
brassiere	bird	assault
breast	blessing	atrocity
charm	boredom	blood
courtship	capacity	brutality
dalliance	cellar	butcher
damsel	comedy	corpse
debacle	competence	death
fantasy	custom	destruction
festivity	determination	extermination
flesh	drama	grief
gender	exhaustion	hatred
impotency	genius	homicide
intimate	mule	hostility
jealousy	phantom	injury
joy	present	malice
kiss	quality	menace
love	refrigerator	misery
maiden	stain	murder
marriage	student	noose
nymph	subtraction	prison

passion	table	revolt
pleasure	traction	skull
rhapsody	university	tragedy
sentiment	valley	troops
warmth	vest	trouble
wench	volocano	victim
woman	whale	weapon

Mean values for each list on each of four variables is presented below:

Word Type	frequency	meaningfulness	concreateness	imagery
Erotic	34.03	5.41	3.94	5.10
Neutral	33.67	6.11	4.42	5.06
Violent	33.53	5.96	4.08	4.95

Frequency, meaningfulness, contreateness, and imagery data were obtained from Paivio, Yuille, and Madigan (1968).

Lists of Cue-Words Used in Experiment 3

Intended Cue Salience Value of the Words

Violent High-Erotic High	Violent High-Erotic Low	Violent Low-Erotic High	Violent Low-Erotic Low
agony	anxiety	amour	affection
algebra	atrocity	appearance	army
belief	capacity	breast	bird
blessing	corpse	brutality	boredom
blood	determination	butcher	charm
cellar	flesh	damsel	comedy
courtship	genius	death	custom
debacle	grief	exhaustion	drama
extermination	hatred	fantasy	gender
homicide	jealousy	festivity	hostility
impotency	menace	injury	joy
kiss	mule	intimate	malice
love	noose	maiden	present
marriage	skull	passion	quality
murder	stain	phantom	rhapsody
pleasure	table	university	sentiment
prison	tragedy	vest	subtraction
refrigerator	troops	victim	trouble
revolt	volcano	warmth	valley
traction	wench	woman	weapon